



LevelOne

WNC-0304USB

11g USB Adapter w/LCD WiFi Detector

User Manual

CONTENTS

| | | |
|----------|---|-----------|
| 1 | INTRODUCTION..... | 1 |
| 1.1 | FEATURES | 1 |
| 1.2 | SPECIFICATIONS | 2 |
| 1.3 | PACKAGE CONTENTS..... | 3 |
| 2 | HOW TO CHARGE THE BATTERY OF WI-FI DETECTOR..... | 4 |
| 3 | HOW TO USE THE WI-FI DETECTOR..... | 5 |
| 4 | HOW TO INSTALL THE DRIVER AND UTILITY..... | 8 |
| 4.1 | INSTALL THE CONFIGURATION UTILITY | 8 |
| 4.2 | INSTALL THE USB ADAPTER | 11 |
| 4.3 | USING THE CONFIGURATION UTILITY | 13 |
| 5 | HOW TO CONFIGURE THE UTILITY | 15 |
| 5.1 | WIRELESS CONNECTION STATUS..... | 16 |
| 5.2 | GENERAL CONNECTION SETTING | 18 |
| 5.3 | WEP AND WPA ENCRYPTION | 21 |
| 5.3.1 | <i>WEP Setting.....</i> | <i>21</i> |
| 5.3.2 | <i>WPA/WPA2 Setting.....</i> | <i>24</i> |
| 5.4 | ADVANCED SETTINGS | 27 |
| 5.5 | SOFTWARE AP MODE..... | 29 |
| 5.5.1 | <i>AP Connection Status</i> | <i>29</i> |
| 5.5.2 | <i>AP General Connection Setting.....</i> | <i>30</i> |
| 5.5.3 | <i>MAC Address Filter.....</i> | <i>33</i> |
| 6 | X-LINK INSTALLATION..... | 34 |
| 7 | TROUBLESHOOTING | 39 |

1 Introduction

Thank you for purchasing LevelOne 11g USB adapter with Wi-Fi Detector. This convenient device instantly detects wireless hotspots anywhere. The backlight LCD display tells the user detailed information about any detected hotspot. There's no need to purchase any battery because there is a rechargeable Li-Polymer battery which recharges whenever the detector is inserted into any USB port.

This Wi-Fi detector also allows the user to go online wirelessly and is designed to comply with IEEE 802.11g Wireless LAN standard. It is suitable for any laptop or desktop computer.

This detector supports 64/128/256-bit WEP data encryption that protects your wireless network from eavesdropping. It also supports WPA (Wi-Fi Protected Access) and WPA2 that combines IEEE 802.1x and TKIP (Temporal Key Integrity Protocol) technologies. Client users are required to authorize before accessing to APs or AP Routers, and the data transmitted in the network is encrypted/decrypted by a dynamically changed secret key. This adapter has built-in AES engine which ensure the highest degree of security and authenticity for digital information and it is the most advanced solution defined by IEEE 802.11i for the security in the wireless network.

1.1 Features

- Complies with the IEEE 802.11b and IEEE 802.11g 2.4GHz standards.
- LCD displays: SSID, Signal Strength, Network type (802.11b/g), Network Mode (infrastructure, Adhoc), operating channel, number of AP's detected, battery strength, Link/Act indicator)
- Up to 54Mbps high data transfer rate.
- Support 64/128/256-bit WEP, WPA (TKIP with IEEE 802.1x) and WPA2 (AES with IEEE 802.1x) functions for high level of security.
* WPA2 supports Windows 2000/XP only.
- Supports Software AP function, which turns the wireless station into a wireless AP.
- Complies with IEEE 802.11d country roaming standard.
- Support the most popular operating system: Windows 98SE/ME/2000/XP.
- Supports USB 2.0/1.1 interface.
- Portable and mini-size design.

- Suitable for Any Notebook or Desktop PC.

1.2 Specifications

- Standard: IEEE 802.11g/b
- LCD Size: 96x32 with EL backlight
- Battery: 4.2V Rechargeable Li-Polymer Battery
- Bus Type: USB 2.0 Type A
- Frequency Band: 2.4000~2.4835GHz (Industrial Scientific Medical Band)
- Modulation: OFDM with BPSK, QPSK, 16QAM, 64QAM (11g)
BPSK, QPSK, CCK (11b)
- Data Rate: 54/48/36/24/18/12/11/9/6/5.5/2/1Mbps auto fallback
- Security: 64/128/256-bit WEP Data Encryption, WPA (TKIP with IEEE 802.1x) and WPA2 (AES with IEEE 802.1x)
*WPA2 supports Windows 2000/XP only
- Antenna: Internal Antenna
- Drivers: Windows 98SE/ME/2000/XP/
- Transmit Power: 16dBm (Typical)
- Dimension: 14(H) x 28.5(W) x 91(D)
- Temperature: 32~140°F (0 ~60°C)
- Humidity: 0-85% (NonCondensing)
- Certification: FCC, CE

1.3 Package Contents

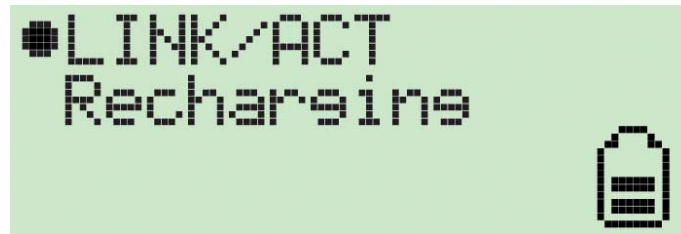
Before you begin the installation, please check the items of your package. The package should include the following items:

- WNC-0304USB
- USB Cable
- CD Manual/Driver/Utility
- Quick Installation Guide

If any of the above items is missing, contact your supplier as soon as possible.

2 How to charge the battery of Wi-Fi Detector

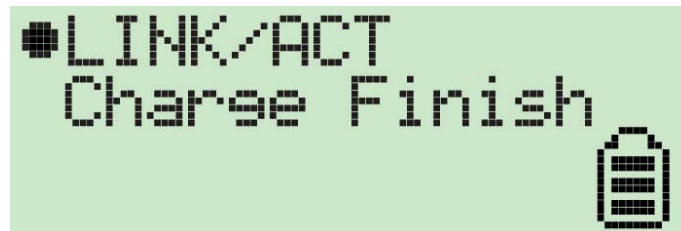
1. Remove the cap from the Wi-Fi Detector, slide the power switch to the “ON” position and carefully insert the USB connector into any available USB port on your computer. You will see the recharging screen.



The battery strength indicator will be animated while the Wi-Fi detector is being recharged.

The “Link/Act” icon will blink when the Wi-Fi detector is being used as a wireless USB adapter to surf the internet.

2. When the Wi-Fi detector is finished recharging it will automatically stop charging the battery. When it is finished recharging the battery you will see “Charge Finish” displayed on the LCD and the battery strength indicator will stop blinking.



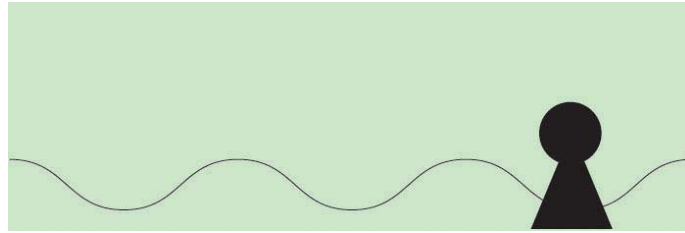
3. If you slide the power switch to the “OFF” position when in recharging, the Wi-Fi detector will stop recharging the battery and you will see “Stop charging” displayed on the LCD and the battery strength indicator will stop blinking.



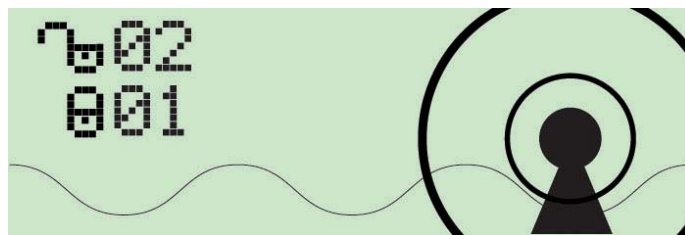
- Please note that, this adapter cannot be charged through hub devices, charging through PC only. Charging through hub devices might result damage to the battery.

3 How to use the Wi-Fi Detector

1. Slide the power switch to the "ON" position.



2. The Wi-Fi detector will automatically enter scanning mode to detect Wi-Fi signals.

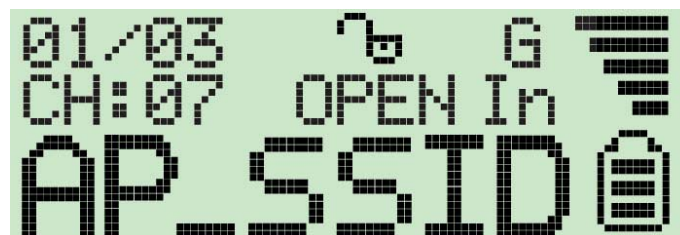


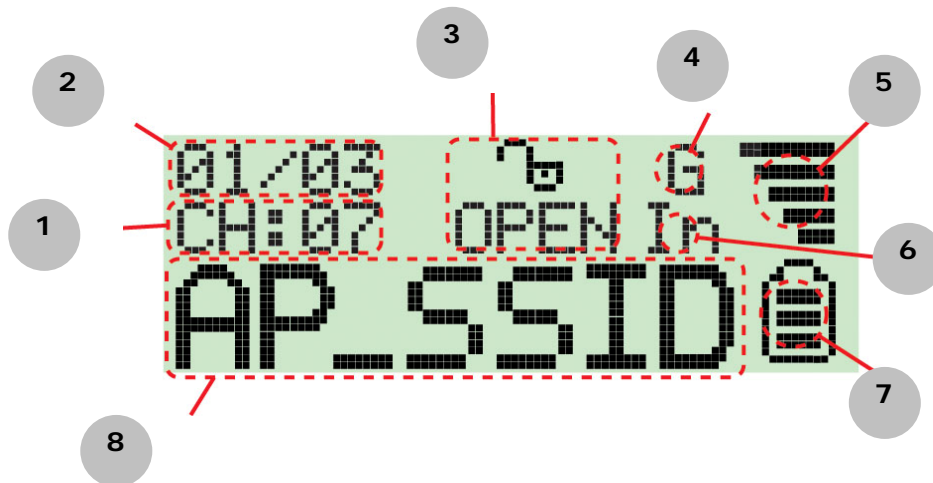
In scanning mode the display will display the total number of both non-encrypted and encrypted Wi-Fi signals detected.

3. Once scanning mode is complete, the detector will enter its standard display mode.

The detector automatically sorts the signals by the following criteria:

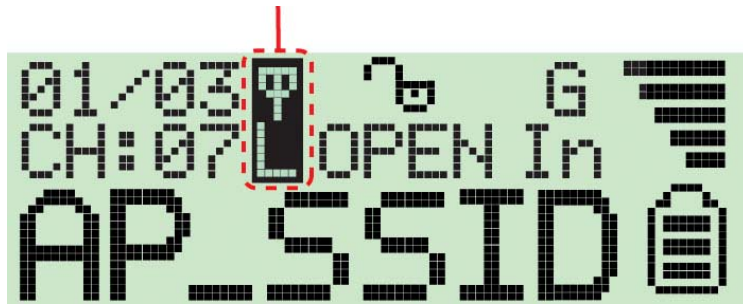
Non-encrypted AP's according to signal strength followed by encrypted AP's according to signal strength.





The Icons on the LCD display are displayed as follows:

1. Operating Channel: Indicates the current operating channel of the detected Wi-Fi signal.
 2. Number of AP's Detected: the left digit indicates which detected Wi-Fi signal is currently displayed and the right digit indicates the total amount of Wi-Fi signals detected.
 3. Encryption indicator: "WEP" for WEP encryption, "WPA" for WPA encryption, and "WPA2" for WPA2 encryption and "OPEN" indicates it is a non-encrypted signal.
 4. "G" indicates the signal is a 802.11g wireless signal. "B" indicates the signal is a 802.11b wireless signal.
 5. Signal strength indicator with 5 bars indicating the signal strength.
 6. "In" indicates the signal is an infrastructure mode signal, "Ad" indicates the signal is an Ad-hoc mode signal.
 7. Battery indicator with 3 bars indicating battery power. When the indicator is empty, please recharge the detector by inserting it into PC's USB port.
 8. SSID Indicator: Displays the SSID of the detected Wi-Fi signal, if the SSID is too long the SSID indicator will scroll to display the complete SSID.
4. If the user wishes to re-scan/re-detect wireless SSID, just simply press "Seek/Lock" button once. If the user wishes to re-detect a specific discovered SSID, then the user has to hold down the "Seek/Lock" button for 4 seconds to enter "lock mode". When the detector is in "lock mode" an icon with a capitalized "L" appears in the top middle corner of the screen.



In "lock mode" the detector constantly re-detects and refreshes the signal strength to this specific SSID so the user can move around to find the optimal spot with strongest signal.

Press and hold the "Seek/Lock" button for 4 seconds to unlock the "lock mode".



4 How to install the driver and utility

Before you proceed with the installation, please pay attention to the following descriptions.

Note1: *Please do not install the USB adapter into your computer before installing the software program from the CD.*

Note2: *The following installation was operated in Windows XP. (Procedures are similar for Windows 98SE/ME/2000/XP)*

Note3: *If you have installed the Wireless PC Card driver & utility before, please uninstall the old version first.*

Please follow below instructions to install the USB adapter.

4.1 Install the Configuration Utility

Insert the Installation CD to your CD-ROM Drive.

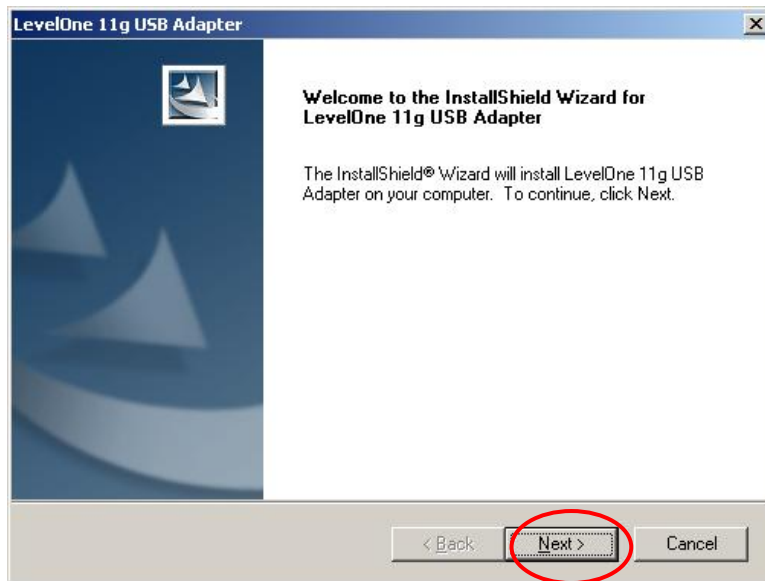
The **WNC-0304USB** installation menu will start up automatically from the CD.

Click **"Install Driver"**.

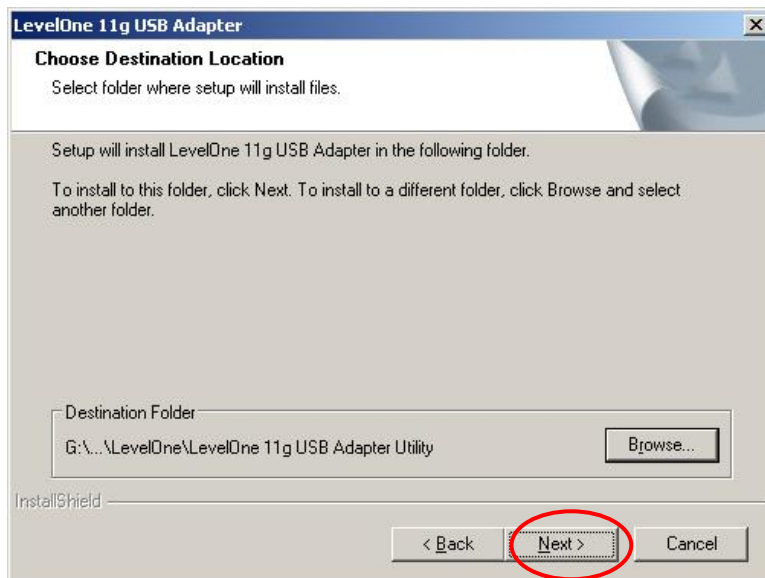
If the CD does not startup automatically (this function may be disabled in the Windows operating system), simply browse the CD from Windows and click on the **autorun.exe** program to access the installation menu.

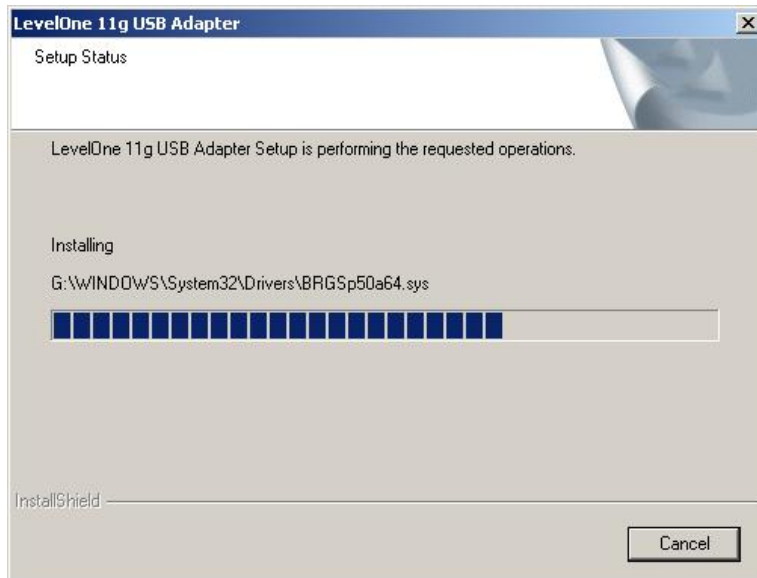


Please click **Next** to continue the installation.

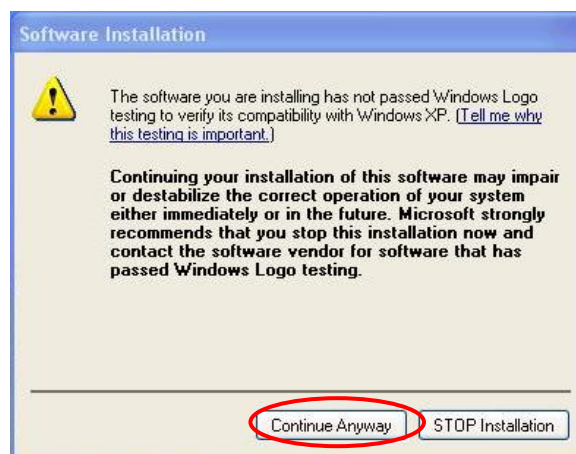


If you want to install the software program in another location, click **Browse** and select an alternative destination. Then, click **Next**.

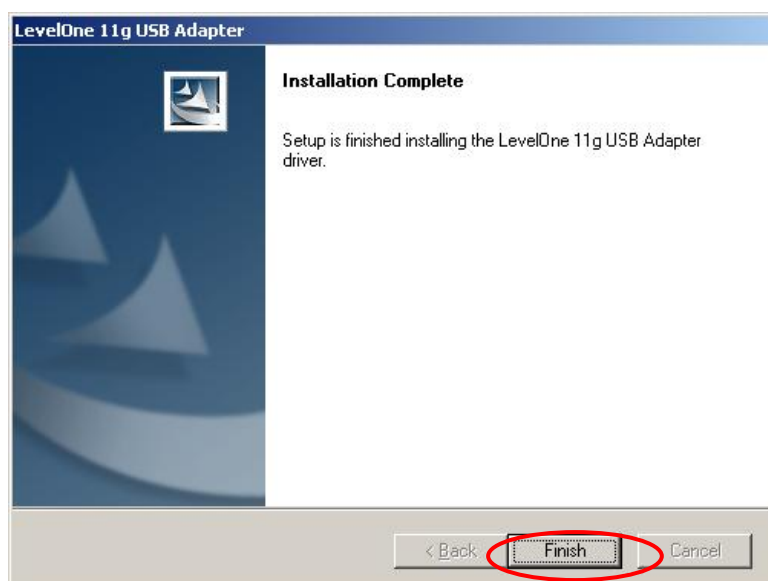




The system will display “Software Installation” screen. Click “**Continue Anyway**” to continue.



Click “**Finish**” to complete the installation.



4.2 Install the USB adapter

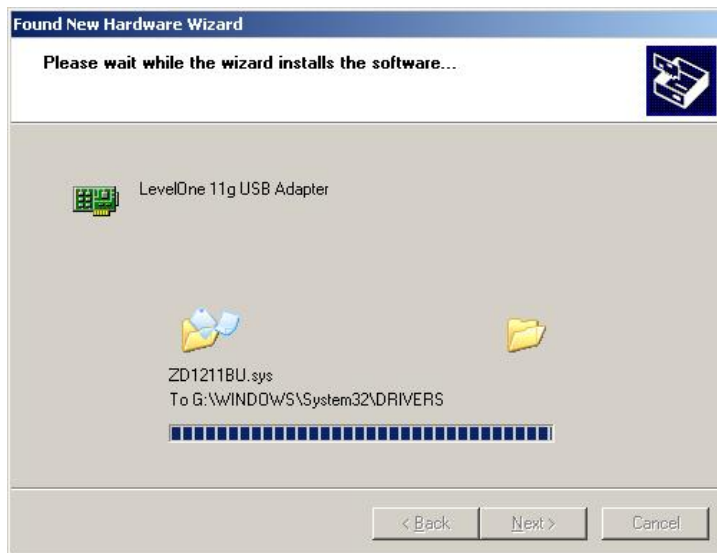
Plug the USB adapter into the USB port of your computer.

The “**Found New Hardware Wizard**” is displayed, select “Install the software automatically (Recommended)” and click “**Next**”.



Click “**Continue Anyway**” and the system will start to install the USB adapter.





Click "Finish" to complete the installation.



4.3 Using the Configuration Utility

To setup the USB adapter, double-click the icon in the system tray.

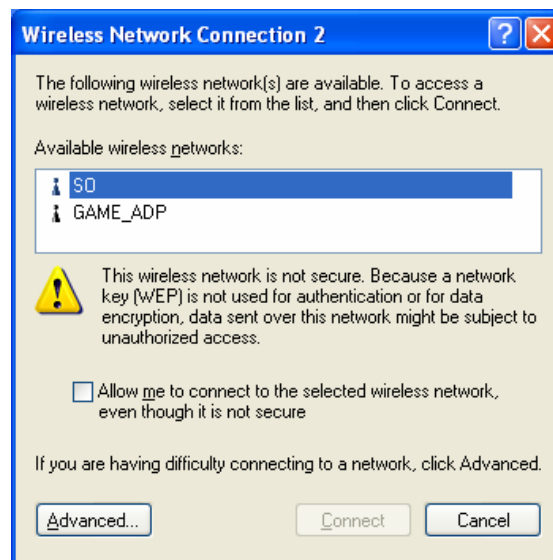
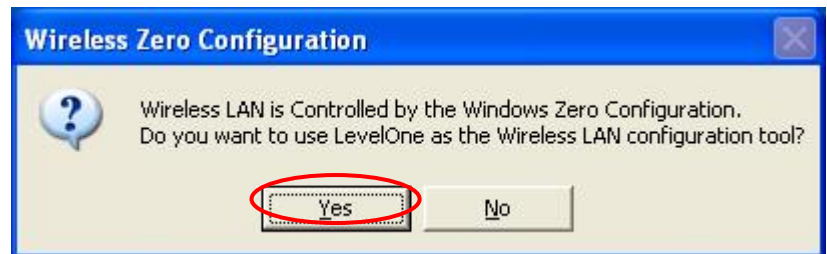


For Windows XP, there is a “Windows Zero Configuration Tool” by default for you to setup wireless clients. If you want to use the Utility of the USB adapter, please follow one of the ways as below.



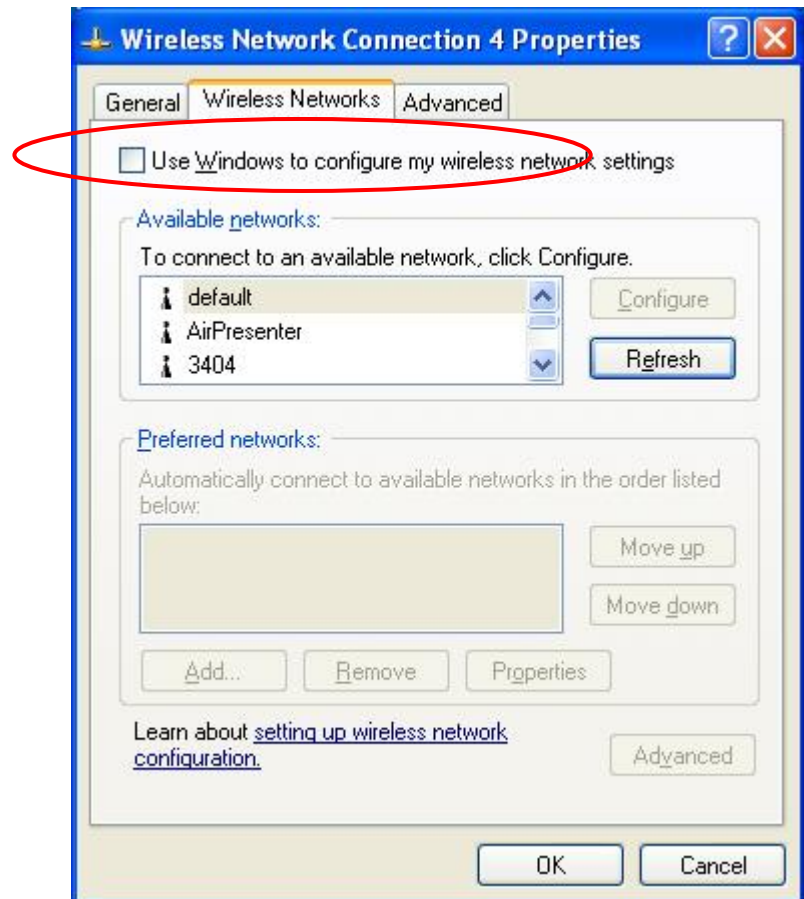
First Way

- A. Double-click the utility icon in the system tray.
- B. Click “Yes” to use the utility of the USB adapter.



Second Way

- A. Double-click the icon.
- B. Click "Advance".
- C. Uncheck "Use Windows to configure my wireless network settings".



5 How to configure the utility

The Configuration Utility is a powerful application that helps you configure the 11g Wireless LAN USB adapter and monitor the link status during the communication process.

The Configuration Utility appears as an icon on the system tray of Windows while the adapter is running. You can open it by double-click on the icon.



Right click the icon, there are some items for you to operate the configuration utility.

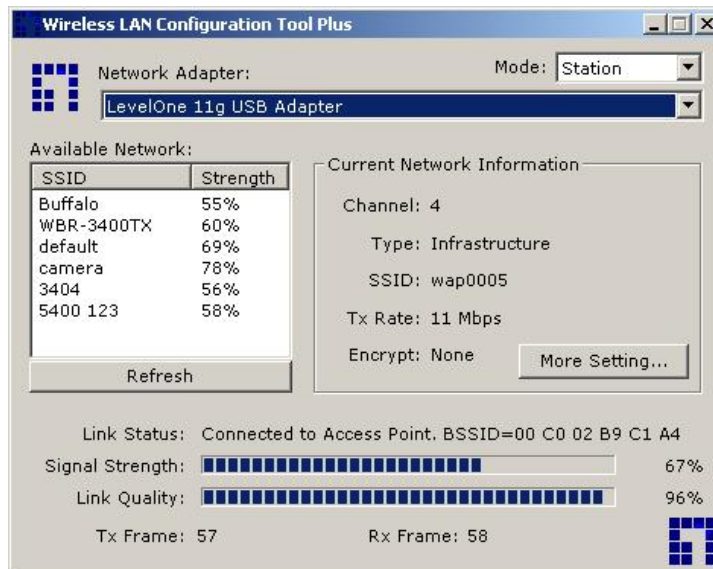
- Open Utility Window
Select "Open Utility Window" to open the Configuration Utility tool.
- Exit LevelOne
Select "Exit LevelOne" to close the Configuration Utility tool.

Before using the utility, you have to know some restrictions of the utility.

1. If you want to connect to 11g (up to 54Mbps) network, please ensure to install the adapter to PC or laptop with USB 2.0 interface. This adapter runs at lower performance while you connect it to the USB 1.1/1.0 port of your computer instead.
2. This adapter will work in 11b mode when the network type is in Adhoc mode. It is defines by Wi-Fi organization. If you want to enable the data rate up to 54Mbps (11g), please follow steps listed below.
 - A. Go to "Network Connections".
 - B. Right Click the "Wireless Network Connection" and select "Properties".
 - C. From the pop-up screen, click "Configure".
 - D. Enter into "Advanced" page of the "Properties" screen.
 - E. Enable the setting of "IBSS_G_Mode".

5.1 Wireless Connection Status

When you open the Configuration Utility, the system will scan all the channels to find all the access points/stations within the accessible range of your adapter and automatically connect to the wireless device with the highest signal strength. From the screen, you may know all the information about the wireless connection.



| Parameter | Description |
|-----------------------------|---|
| Mode | <p>Station – Set the USB adapter as a wireless client.</p> <p>Access Point – Turns the USB adapter to function as a wireless AP. Please refer to Section 6.5 for the AP settings.</p> |
| Network Adapter | Display the product information of the USB adapter. |
| Available Network | <p>Display all the SSID and Signal Strength of wireless stations nearby. To re-survey the available wireless devices please click “Refresh”.</p> <p>There are two ways to automatically make the connection between the USB adapter and the wireless station on the list.</p> <ol style="list-style-type: none"> 1. Double-click the wireless station on the list directly. 2. Select the station you intend to connect and then click “Connect this site”. |
| Current Network Information | Display the information about the wireless network this adapter is |

connecting to. The information includes Channel, Type, SSID, TX Rate and Encrypt settings. Note: Please refer to Section 5.2 for the description of each item.

| | |
|--------------|---|
| More Setting | For setting more functions including disable/enable WEP and Power Saving Mode, etc. Please refer to Section 5.2, 5.3 and 5.4 for more detail. |
| Link Status | Display the status of the wireless connection. |
| BSSID | Display the MAC Address of the network the adapter is connecting to. |

| Parameter | Description |
|-----------------|---|
| Signal Strength | This bar shows the signal strength level. The higher percentage shown in the bar, the more radio signal been received by the adapter. This indicator helps to find the proper position of the wireless station for quality network operation. |
| Link Quality | This bar indicates the quality of the link. The higher the percentage, the better the quality. |
| TX Frame | It shows the number of data frames which are transmitted by the adapter successfully. |
| RX Frame | It shows the number of data frames which are received by the adapter successfully. |

5.2 General Connection Setting

Click “More Setting”, users are allowed to setup the wireless connection setting, Encryption Setting of the USB adapter and other advanced functions.



| Parameter | Description |
|-----------------------------------|---|
| General Connection Setting | |
| Wireless Mode | 802.11b+g Mix Mode, it will auto scan all available 802.11b and 802.11g wireless station. |
| Channel | Select one of the radio channel to be used for the wireless network. The channel setting of the wireless stations within a network should be the same. |

| Parameter | Description |
|-----------|--|
| Tx Rate | There are several options including Auto/1/2/5.5/11/6/9/12/18/24/36/48/54Mbps for you to select. When the “Auto” is selected, the device will choose the most suitable transmission rate automatically. The higher data rate you select in the network, the shorter distance is allowed between the adapter and the wireless stations. |

When the adapter works in 11b mode, the maximum data rate is 11Mbps so that there are only “Auto/1/2/5.5/11Mbps” options you can select.

SSID

The SSID (up to 32 printable ASCII characters) is the unique name identified in a WLAN. The ID prevents the unintentional merging of two co-located WLANs.

You may specify a SSID for the adapter and then only the device with the same SSID can interconnect to the adapter.

Any

If “Any” check box is enabled, the adapter will survey and connect to one of the available wireless stations without checking the consistency of channel and SSID with the wireless station.

Network Type

Ad-Hoc – This mode enables wireless network adapters interconnecting without through AP or Router. Select this mode if there is no AP or Router in the network.

Infrastructure – This operation mode requires the presence of an 802.11 Access Point. All communication is done via the Access Point or Router.

Change/Apply

Click “Change” will enable you to setup the parameters of “General Connection Setting”. In the meantime, the button will change to “Apply” for you to confirm your settings.

Encryption Setting

In the block, users may enable/disable WEP and WPA encryption within the network. Please refer to Section 5.3 for more description.

| Parameter | Description |
|----------------------------|---|
| Authentication Mode | <p>This setting has to be consistent with the wireless networks that the adapter intends to connect.</p> <p>Open System – No authentication is needed among the wireless network.</p> <p>Shared Key – Only wireless stations using a shared key (WEP Key identified) are allowed to connect each other.</p> <p>Auto – Auto switch the authentication algorithm depending on the wireless networks that the adapter is connecting to.</p> |
| WEP Encryption Key Setting | Click this button to setup the WEP key. Please refer to Section 5.3 for the details. |
| WPA Encryption Setting | Click this button to setup the WPA function. Please refer to Section 5.3 for the details. |
| Profile | |
| Profile Name | You can save the network setting as a profile. To connect to the network without making additional configuration, you can load the profile. |
| Load | Load the setting values from the file in the “Profile Name” list. The new settings will be activated immediately. |
| Save Current | Input a file name and click “Save Current” to write the current setting values to be a profile in the “Profile Name” list. |
| Delete | Delete the profile you select. |
| Other | |
| Advanced Setting... | For more advanced setting, please click it. To know more of the setting, please refer to Section 5.4. |
| Information | Click this button to view the version of the driver, firmware and the MAC Address of the adapter. |

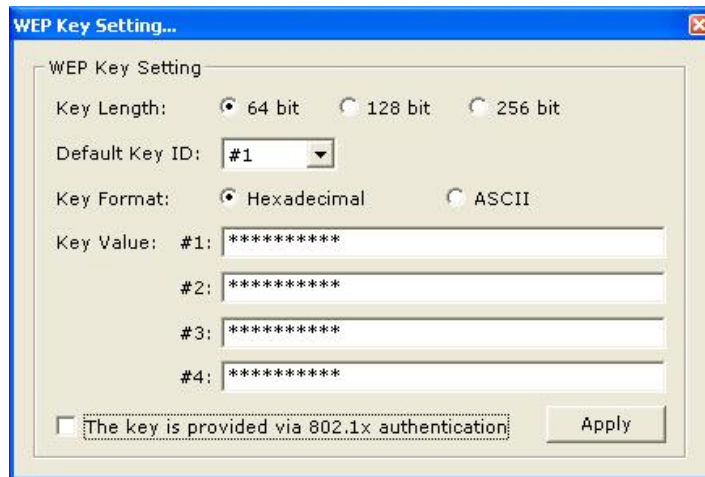
5.3 WEP and WPA Encryption

WEP is an data encryption algorithm, which protects Wireless LAN data in the network against eavesdropping. WEP has been found that it has some security problems. The adapter supports WPA (Wi-Fi Protected Access) that combines IEEE 802.1x and TKIP (Temporal Key Integrity Protocol) technologies. Client users are required to authorize before accessing to APs or AP Routers, and the data transmitted in the network is encrypted/decrypted by a dynamically changed secret key. This adapter is also built-in AES engine which ensure the highest degree of security and authenticity for digital information and it is the most advanced solution defined by IEEE 802.11i for the security in the wireless network.

5.3.1 WEP Setting

In “More Setting”, clicks “WEP Encryption Key Setting” to setup WEP security key





| Parameter | Description |
|----------------|---|
| Key Length | You may select the 64-bit, 128-bit or 256-bit to encrypt transmitted data. Larger key length will provide higher level of security, but the throughput will be lower. |
| Default Key ID | Select one of the keys (1~4) as the encryption key. |
| Key Format | Hexadecimal – Only “A-F”, “a-f” and “0-9” are allowed to be set as WEP key. ASCII – Numerical values, characters or signs are allowed to be the WEP key. It is more recognizable for user. |

| Parameter | Description |
|--------------|---|
| Key1 ~ Key4 | The keys are used to encrypt data transmitted in the wireless network. Fill the text box by following the rules below. 64-bit – Input 10-digit Hex values or 5-digit ASCII values as the encryption keys. For example: “0123456aef” or “Guest”. 128-bit – Input 26-digit Hex values or 13-digit ASCII values as the encryption keys. For example: “01234567890123456789abcdef” or “administrator”. 256-bit – Input 58-digit Hex values or 29-digit ASCII values as the encryption keys. |
| Change/Apply | Click “Change” will enable you to setup the WEP key. In the |

meantime, the button will change to “Apply“ for you to confirm your settings.

5.3.2 WPA/WPA2 Setting

The adapter can automatically detect the WPA setting of the AP which the adapter intends to connect to. To connect to the AP, you should setup the same setting as the AP.

There are two kinds of WPA mode: WPA and WPA-PSK. WPA is designed for enterprise which requires a RADIUS Server and Certificate Server for the authentication. WPA-PSK is a special mode designed for home and small business users who do not have access to network authentication servers. In this mode, the user manually enters the starting password in their access point or gateway, as well as in each wireless stations in the network. WPA takes over automatically from that point, keeping unauthorized users that don't have the matching password out of the network, while encrypting the data traveling between authorized devices.

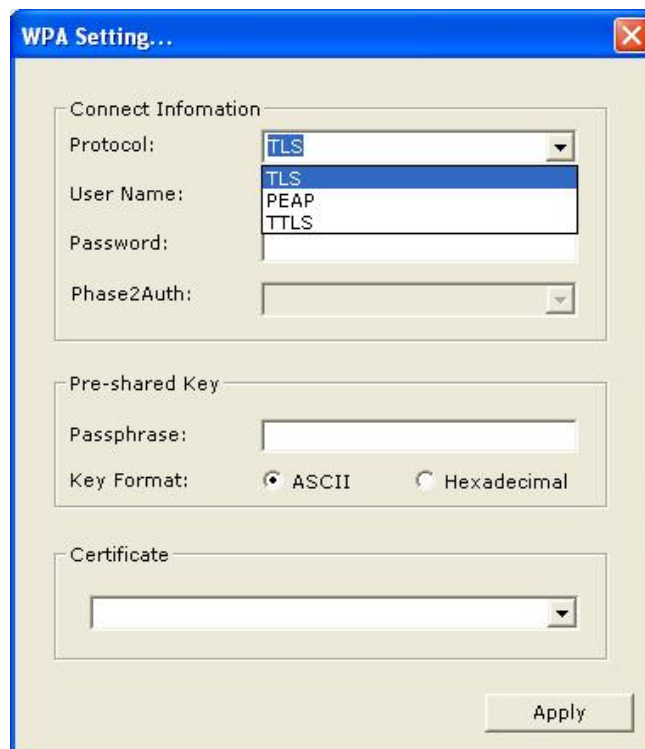
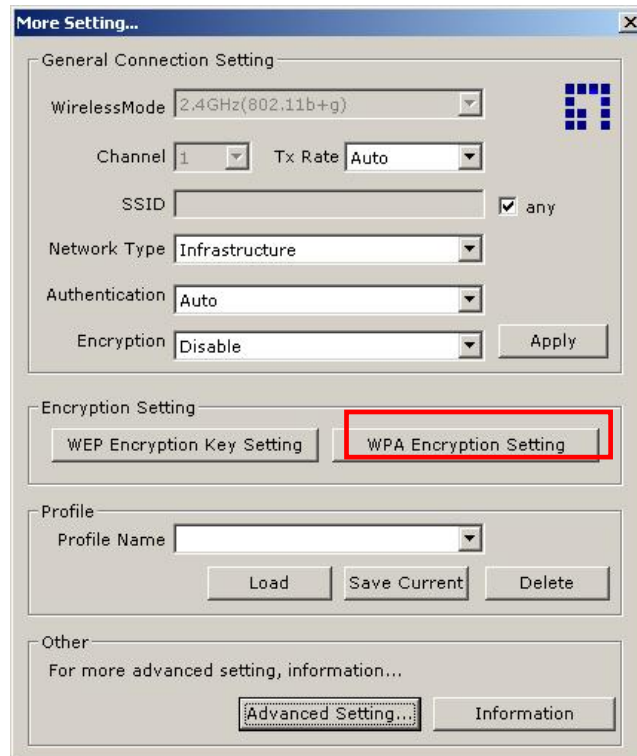
WPA2 – Like WPA, WPA2 supports IEEE 802.1x/EAP authentication or PSK technology. It also includes a new advanced encryption mechanism using the Advanced Encryption Standard (AES). AES is required to the corporate user or government users. The difference between WPA and WPA2 is that WPA2 provides data encryption via the AES. In contrast, WPA uses Temporal Key Integrity Protocol (TKIP).

*WPA2 supports Windows 2000/XP only

WPA2-PSK – WPA2-PSK is also for home and small business. The difference between WPA-PSK and WPA2-PSK is that WPA2-PSK provides data encryption via the AES. In contrast, WPA-PSK uses Temporal Key Integrity Protocol (TKIP).

*WPA2 supports Windows 2000/XP only

In "More Setting" clicks "WPA Encryption Setting" to setup WPA security key

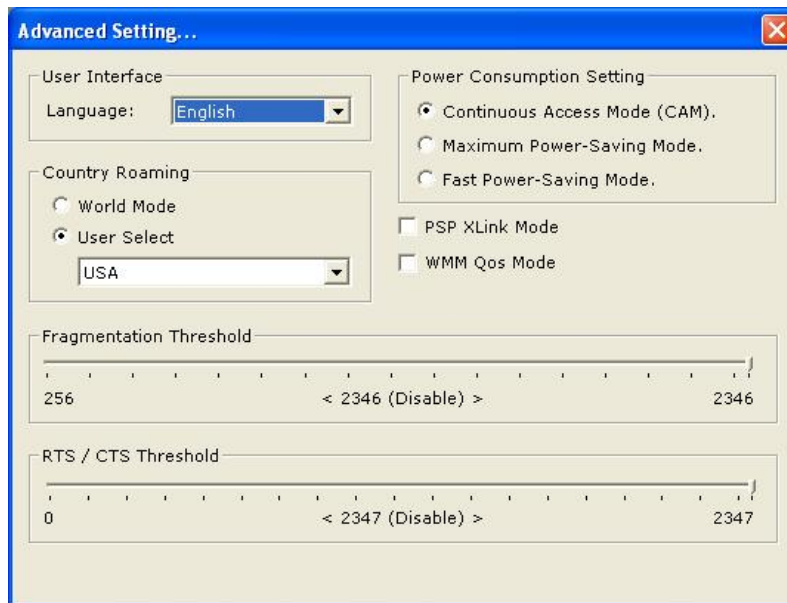


| Parameter | Description |
|---------------------|--|
| Connect Information | It is the setting for WPA mode. |
| Protocol | This adapter supports three kinds of protocol for authentication including TLS, TTLS and PEAP. These three protocols require a certificate which is provided by the Certificate Server. PEAP and TTLS require a set of user name and password in addition. To get the certificate and the personal user name and password, please contact with your administrator. TLS – Select a certificate from the “Certificate” list. PEAP – Input the “User Name” and “Password” and also select a certificate from the “Certificate” list. TTLS – Input the “User Name”, “Password” and “Phase2Auth” and also select a certificate from the “Certificate” list. |
| User Name | It is the setting for PEAP protocol. |
| Password | It is the setting for PEAP protocol. |
| Phase2Auth | It is the setting for TTLS protocol, including PAP, CHAP, MSCHAP and MSCHAPv2 |
| Pre-shared Key | It is the setting for WPA-PSK mode. Input a 8 to 63 digits of ASCII format to be the password for the authentication within the network. |
| Certificate | All the available certificates for TLS or PEAP will display in the list. Please select a proper certificate for the wireless authentication. |

| Parameter | Description |
|-----------------|---|
| WEP Key | If the AP uses WEP data encryption function, please click “WEP KEY SETTING” to setup the WEP key. |
| WEP KEY SETTING | Setup the four sets of WEP key by clicking the button. |
| Change/Apply | Click “Change” will enable you to setup the WPA setting. In the meantime, the button will change to “Apply” for you to confirm your settings. |

5.4 Advanced Settings

The “Advanced Setting” allows user to enable/disable country roaming and power consumption mode, setup the fragmentation threshold and RTS/CTS threshold of the adapter.



| Parameter | Description |
|-----------------|--|
| User Interface | Select the display language of the utility. Two languages are enabled: English and Chinese. |
| Country Roaming | IEEE 802.11d (Country Roaming) is a standard that enable the wireless devices work at the proper transmission power and radio channel regulated by the country where the user is located. World Mode – Enable the country roaming function, the adapter will follow the setting of the connecting AP automatically. User Select – Disable the country roaming function, users can select the country where they are located. The channel setting differs from country user selected. |

| Parameter | Description |
|---------------------------|---|
| Power Consumption Setting | Continuous Access Mode (CAM) – The adapter will always set in active mode. Maximum Power-Saving Mode – Enable the adapter in the power saving mode when it is idle. Fast Power-Saving Mode – Enable the adapter in the power |

saving mode when it is idle, but some components of the adapter is still alive. In this mode, the power consumption is larger than “Maximum Power-Saving“ mode.

PSP XLink Mode

XLink is an infrastructure tunneling program which allows you to play Ad-hoc PSP multiplayer games through the Internet.

WMM QoS Mode

The primary goal of *Quality of Service* (QoS) is to provide priority including dedicated bandwidth, controlled jitter and latency (required by some real-time and interactive traffic), and improved loss characteristics. WiFi Multimedia (WMM) adds prioritized QoS capabilities to Wi-Fi networks and optimizes its performance when multiple concurring applications, each with different latency and throughput requirements, compete for network resources.

Fragmentation Threshold

The value defines the maximum size of packets, any packet size larger than the value will be fragmented. If you have decreased this value and experience high packet error rates, you can increase it again, but it will likely decrease overall network performance. Select a setting within a range of 256 to 2346 bytes. Minor change is recommended.

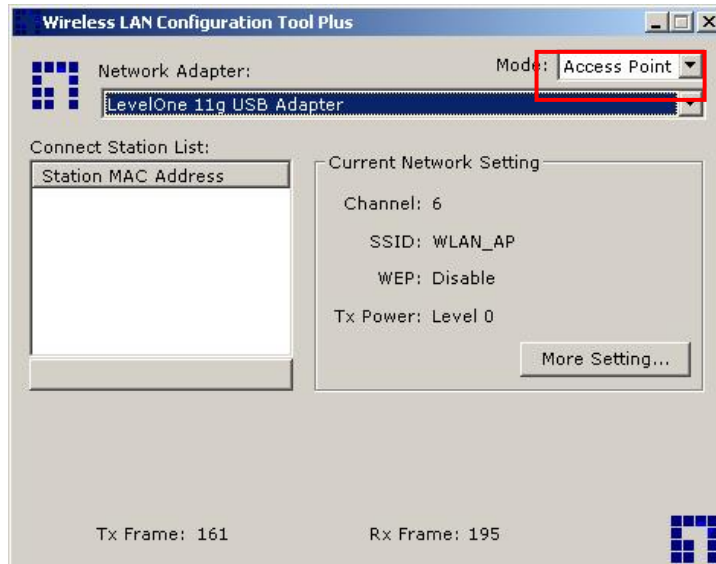
RTS / CTS Threshold

Minimum packet size required for an RTS/CTS (Request To Send/Clear to Send). For packets smaller than this threshold, an RTS/CTS is not sent and the packet is transmitted directly to the WLAN. Select a setting within a range of 0 to 2347 bytes. Minor change is recommended

5.5 Software AP Mode

This adapter can run as a wireless AP. The relative configurations of the AP including channel, SSID, MAC Address Filtering, WEP encryption and so on are described as follows.

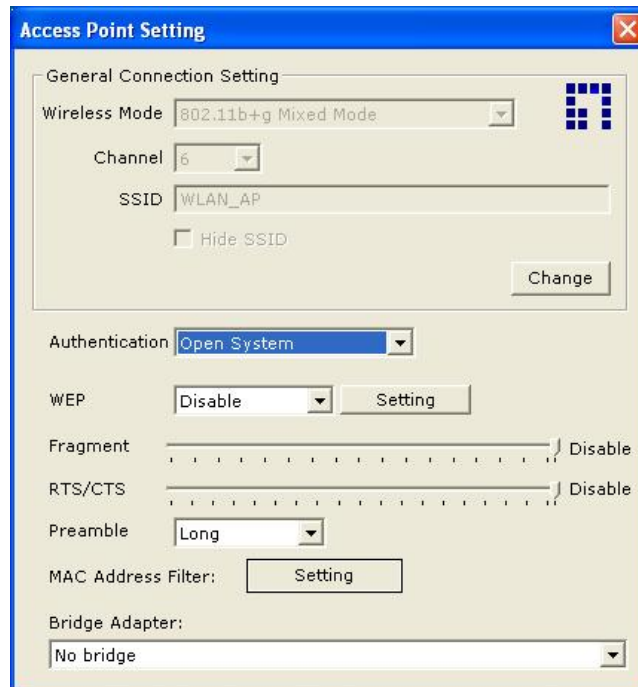
5.5.2 AP Connection Status



| Parameter | Description |
|-------------------------|---|
| Mode | <p>Station – Set the USB adapter a wireless client.</p> <p>Access Point – Turns the USB adapter to function as a wireless AP.</p> |
| Network Adapter | Display the product information of the USB Adapter. |
| Connect Station List | Display all the MAC Addresses of the wireless adapters which are connecting to the AP. |
| Current Network Setting | Display the connection setting of the current network. It includes Channel, SSID, and WEP |
| More Setting | For setting more functions including disable/enable WEP, MAC Address Filter and Bridge Adapter, etc. Please refer to Section 5.5.2. |
| TX Frame | It shows the number of data frames which are transmitted by the AP successfully. |
| RX Frame | It shows the number of data frames which are received by the AP successfully. |

5.5.2 AP General Connection Setting

Click “More Setting”, users are allowed to setup the AP connection setting, Encryption Setting and other advanced functions.



| Parameter | Description |
|-----------------------------------|---|
| General Connection Setting | |
| Channel | Select the number of the radio channel used by the AP. The wireless adapters which connects to the AP should set up the same channel. |
| SSID | |
| SSID | The SSID (up to 32 printable ASCII characters) is the unique name identified in a WLAN. The ID prevents the unintentional merging of two co-located WLANs. The default SSID of the AP is WLAN_AP. Wireless adapters connect to the AP should set up the same SSID as the AP. |

| | |
|---------------------|--|
| Hide SSID | If “Hide SSID” check box is enabled, the AP will not appear in the site survey list of any wireless adapters. It means Only the wireless adapters set the same SSID can connect to the AP. It avoids the AP being connected by unauthorized users. |
| Change/Apply | Click “Change” will enable you to setup the parameters of “General Connection Setting”. In the meantime, the button will change to “Apply” for you to confirm your settings. |
| Authentication Mode | Open System – No authentication is needed for connecting to the AP. Shared Key – Only wireless adapters using a shared key (WEP Key identified) are allowed to connecting to the AP. |
| WEP | Enable or disable WEP encryption function. If the WEP function is enabled, only wireless adapters with the same default key and WEP key setting can connect to the AP. |
| Setting | Click “Setting” to setup the WEP key. Please refer to Section 5.3 for more WEP key description. |

| Parameter | Description |
|---------------|--|
| Fragmentation | The value defines the maximum size of packets, any packet size larger than the value will be fragmented. If you have decreased this value and experience high packet error rates, you can increase it again, but it will likely decrease overall network performance. Select a setting within a range of 256 to 2346 bytes. Minor change is recommended. |
| RTS / CTS | Minimum packet size required for an RTS/CTS (Request To Send/Clear to Send). For packets smaller than this threshold, an RTS/CTS is not sent and the packet is transmitted directly to the WLAN. Select a setting within a range of 0 to 2347 bytes. Minor change is recommended. |
| Preamble | The preamble defines the length of the CRC block for communication among the wireless networks. There are two modes including Long and Short. High network traffic areas |

should use the shorter preamble type.

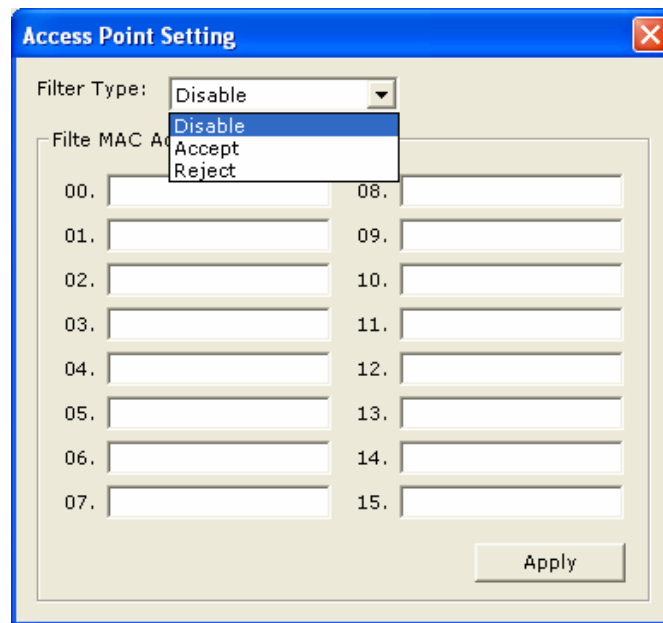
MAC Address Filter

This AP can protect from the unauthorized users by MAC Address filtering. Please refer to Section 6.5.3.

Bridge Adapter

Wireless adapters connect to the AP can access to the wired network through the bridge adapter. You can select an Ethernet adapter in the list be the bridge between the wireless and wired networks.

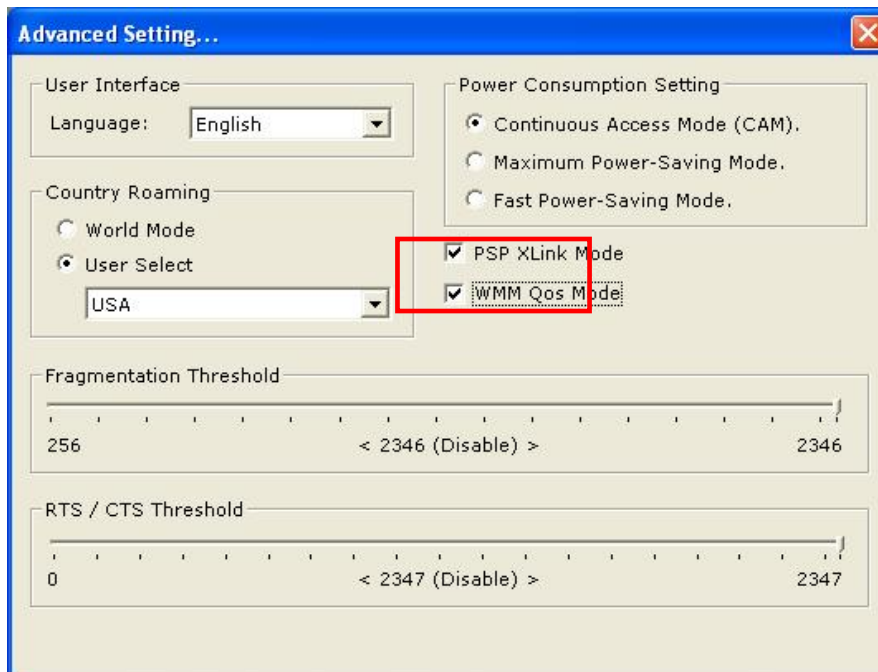
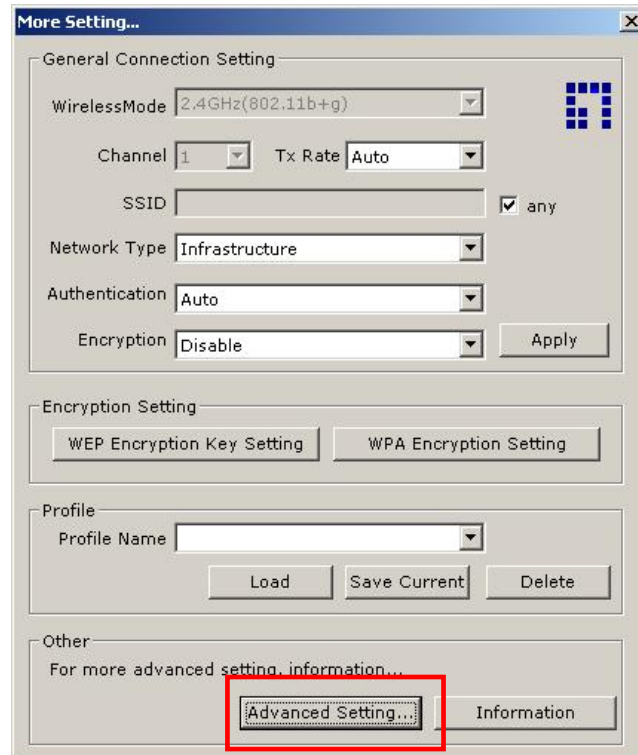
5.5.3 MAC Address Filter



| Parameter | Description |
|--------------------|---|
| Filter Type | <p>Disable – Disable the MAC Address filter function.</p> <p>Accept – Only the wireless adapters with the MAC Address setup in the table can connect to the AP.</p> <p>Reject – The wireless adapters with the MAC Address setup in the table will be rejected to connect to the AP.</p> |
| Filter MAC Address | <p>MAC Address is a unique identification for hardware devices in the network. It is a 12-digit hexadecimal values.</p> <p>There are fifty sets of MAC Address can setup in the table. Fill the MAC Addresses of wireless adapters you want to accept or reject to access the AP in this table.</p> |

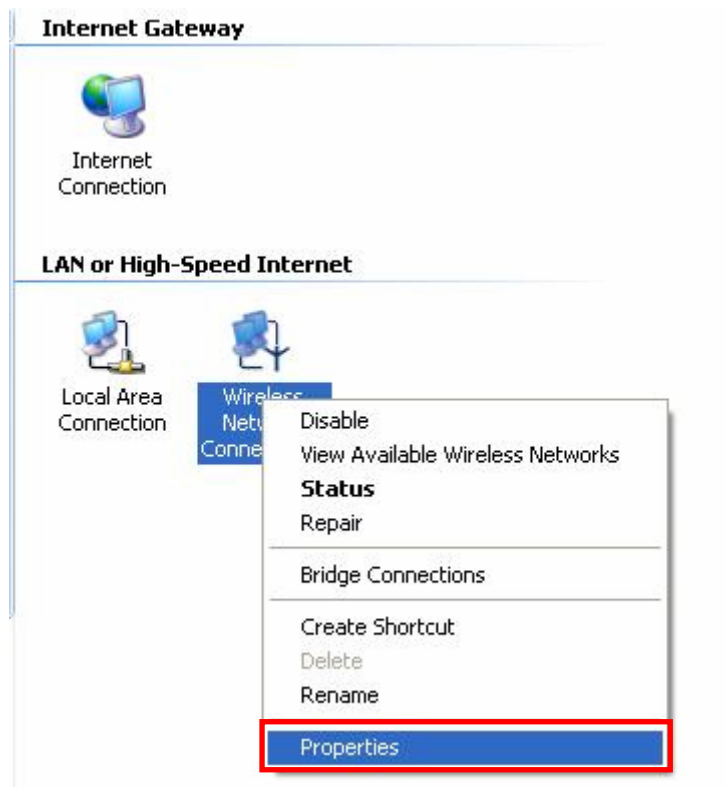
6 X-Link Installation

Clicks “Advanced Setting” and check the “PSP XLink Mode” & “WMM QoS Mode”

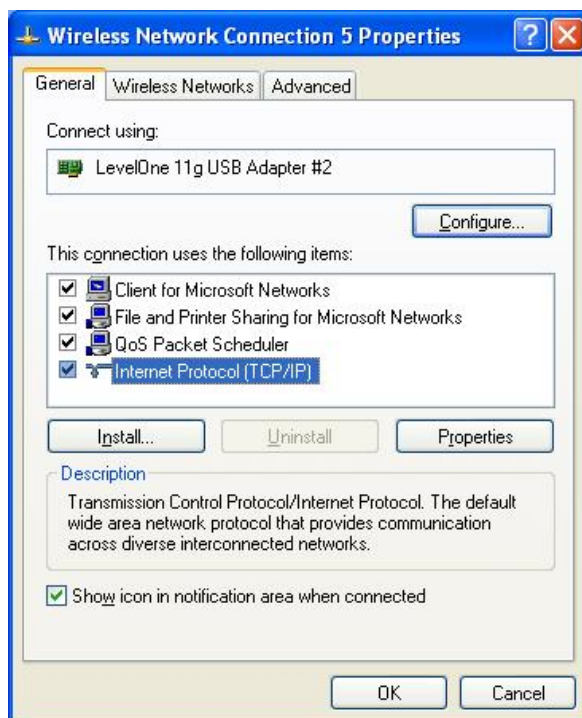


1) Open Control Panel --> Internet Connection

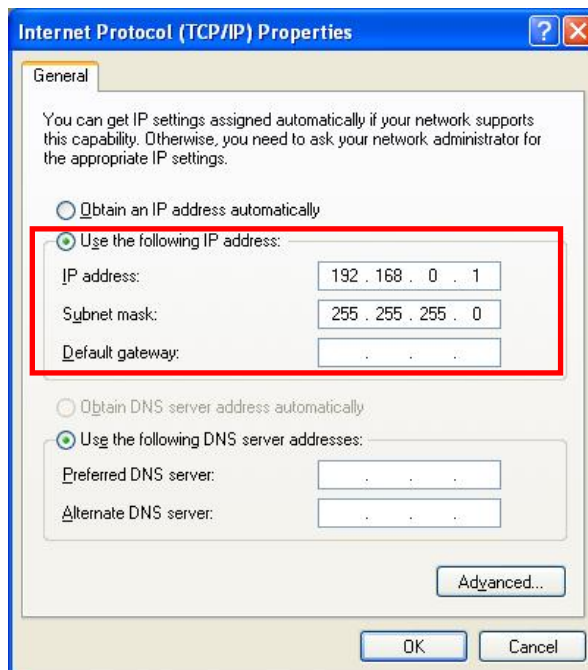
Right Click “Wireless Network Connection” and select “Properties”



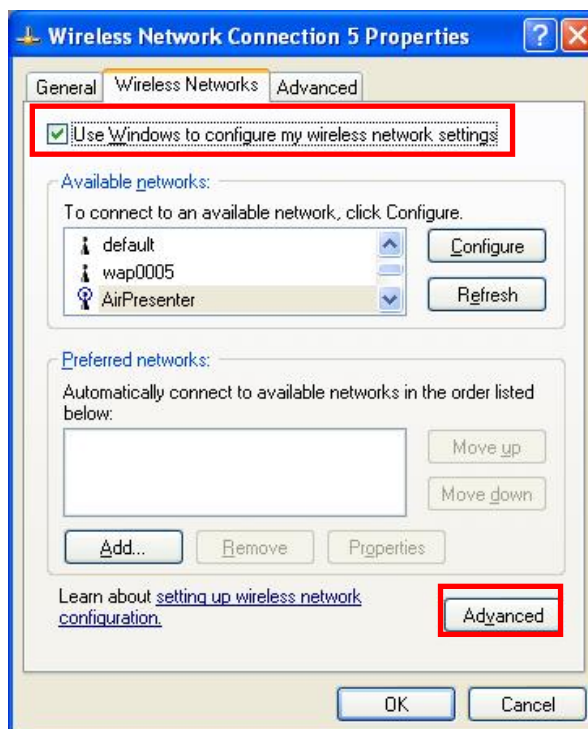
2) Under “General”, select “Internet Protocol (TCP/IP) and click “Properties”



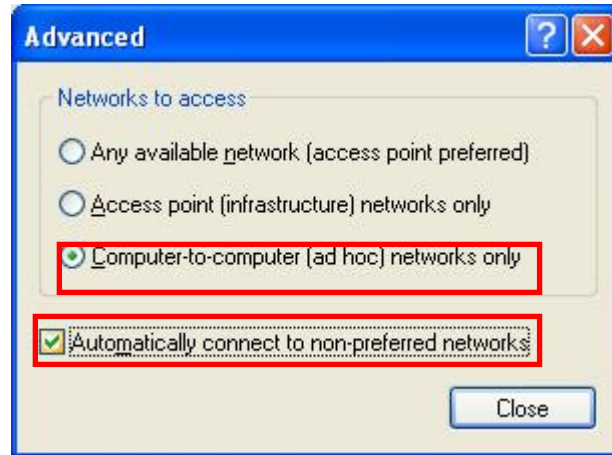
- 3) Select “Use the following IP address:” and enter “192.168.0.1” for IP address: “255.255.255.0” for Subnet mask then clicks “OK”



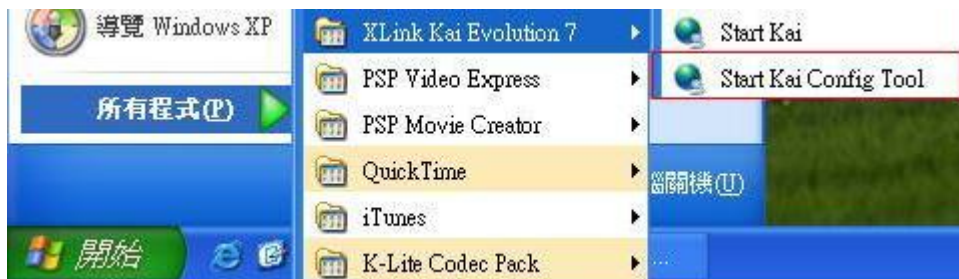
- 4) Under Wireless Internet Network Enable “Use Windows to configure my wireless network setting”
Then select “Advanced”



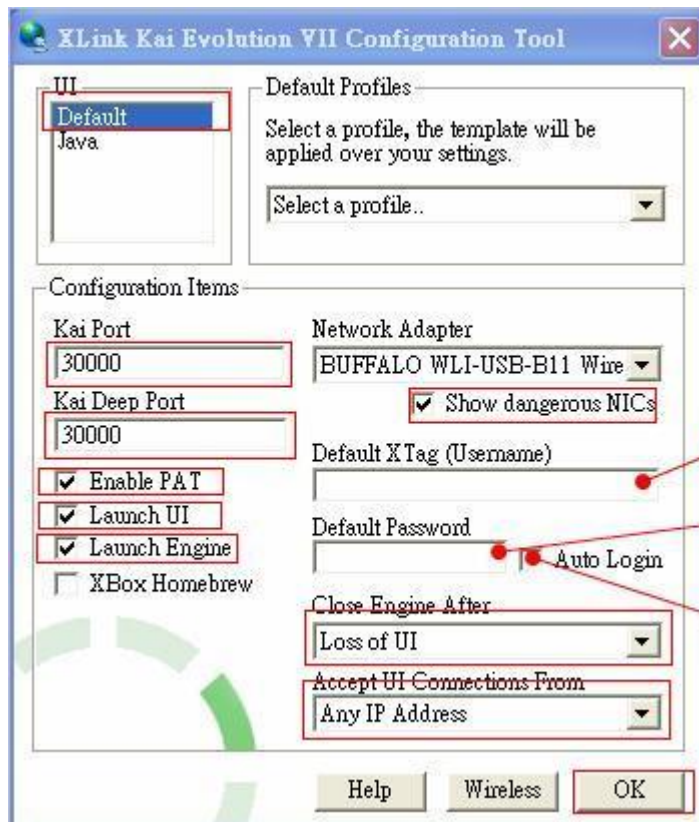
- 5) Select "Computer-to-computer (ad hoc) networks only"
Enable "Automatically connect to non-preferred networks"
Clicks "Close" back to previous page and clicks "OK" to confirm setting



- 6) Setting completed, please turn your PSP into online status
- 7) Please go to X-Link official site to download X-Link software and register to X-Link
<http://www.teamxlink.co.uk/>
- 8) Start the X-Link software after the installation



- 9) Enter username and password when you registered to X-Link official site
Clicks "OK" to start online gaming



7 Troubleshooting

This chapter provides solutions to problems usually encountered during the installation and operation of the adapter.

1. What is the IEEE 802.11g standard?

802.11g is the new IEEE standard for high-speed wireless LAN communications that provides for up to 54 Mbps data rate in the 2.4 GHz band. 802.11g is quickly becoming the next mainstream wireless LAN technology for the home, office and public networks. 802.11g defines the use of the same OFDM modulation technique specified in IEEE 802.11a for the 5 GHz frequency band and applies it in the same 2.4 GHz frequency band as IEEE 802.11b. The 802.11g standard requires backward compatibility with 802.11b.

The standard specifically calls for:

- A. A new physical layer for the 802.11 Medium Access Control (MAC) in the 2.4 GHz frequency band, known as the extended rate PHY (ERP). The ERP adds OFDM as a mandatory new coding scheme for 6, 12 and 24 Mbps (mandatory speeds), and 18, 36, 48 and 54 Mbps (optional speeds). The ERP includes the modulation schemes found in 802.11b including CCK for 11 and 5.5 Mbps and Barker code modulation for 2 and 1 Mbps.
- B. A protection mechanism called RTS/CTS that governs how 802.11g devices and 802.11b devices interoperate.

2. What is the IEEE 802.11b standard ?

The IEEE 802.11b Wireless LAN standard subcommittee, which formulates the standard for the industry. The objective is to enable wireless LAN hardware from different manufactures to communicate.

3. What does IEEE 802.11 feature support ?

The product supports the following IEEE 802.11 functions:

- CSMA/CA plus Acknowledge Protocol
- Multi-Channel Roaming
- Automatic Rate Selection
- RTS/CTS Feature
- Fragmentation
- Power Management

4. What is Ad-hoc ?

An Ad-hoc integrated wireless LAN is a group of computers, each has a Wireless LAN adapter, Connected as an independent wireless LAN. Ad hoc wireless LAN is applicable at a departmental scale for a branch or SOHO operation.

5. What is Infrastructure ?

An integrated wireless and wireless and wired LAN is called an Infrastructure configuration. Infrastructure is applicable to enterprise scale for wireless access to central database, or wireless application for mobile workers.

6. What is BSS ID ?

A specific Ad hoc LAN is called a Basic Service Set (BSS). Computers in a BSS must be configured with the same BSS ID.

7. What is WEP ?

WEP is Wired Equivalent Privacy, a data privacy mechanism based on a 40 bit shared key algorithm, as described in the IEEE 802 .11 standard.

8. What is TKIP?

TKIP is a quick-fix method to quickly overcome the inherent weaknesses in WEP security, especially the reuse of encryption keys. TKIP is involved in the IEEE 802.11i WLAN security standard, and the specification might be officially released by early 2003.

9. What is AES?

AES (Advanced Encryption Standard), a chip-based security, has been developed to ensure the highest degree of security and authenticity for digital information, wherever and however communicated or stored, while making more efficient use of hardware and/or software than previous encryption standards. It is also included in IEEE 802.11i standard. Compare with AES, TKIP is a temporary protocol for replacing WEP security until manufacturers implement AES at the hardware level.

10. Can Wireless products support printer sharing ?

Wireless products perform the same function as LAN products. Therefore, Wireless products can work with Netware, Windows 2000, or other LAN operating systems to support printer or file sharing.

11. Would the information be intercepted while transmitting on air ?

WLAN features two-fold protection in security. On the hardware side, as with Direct Sequence Spread Spectrum technology, it has the inherent security feature of scrambling. On the software side, WLAN series offer the encryption function (WEP) to enhance security and Access Control. Users can set it up depending upon their needs.

12. What is DSSS ? What is FHSS ? And what are their differences ?

Frequency-hopping spread-spectrum (FHSS) uses a narrowband carrier that changes frequency in a pattern that is known to both transmitter and receiver. Properly synchronized, the net effect is to maintain a single logical channel. To an unintended receiver, FHSS appears to be short-duration impulse noise. Direct-sequence spread-spectrum (DSSS) generates a redundant bit pattern for each bit to be transmitted. This bit pattern is called a chip (or chipping code). The longer the chip is, the greater the probability that the original data can be recovered. Even if one or more bits in the chip are damaged during transmission, statistical techniques embedded in the radio can recover the original data without-the need for retransmission. To an unintended receiver, DSSS appears as low power wideband noise and is rejected (ignored) by most narrowband receivers.

13. What is Spread Spectrum ?

Spread Spectrum technology is a wideband radio frequency technique developed by the military for use in reliable, secure, mission-critical communication systems. It is designed to trade off bandwidth efficiency for reliability, integrity, and security. In other words, more bandwidth is consumed than in the case of narrowband transmission, but the trade off produces a signal that is, in effect, louder and thus easier to detect, provided that the receiver knows the parameters of the spread-spectrum signal being broadcast. If a receiver is not tuned to the right frequency, a spread –spectrum signal looks like background noise. There are two main alternatives, Direct Sequence Spread Spectrum (DSSS) and Frequency Hopping Spread Spectrum (FHSS).

14. What is the maximum AP that can be detected?

Detector can detect up to 16 APs in a certain area.

For example, If there are 20 APs in an area, detector can only detect 16 APs.

15. What is the maximum detection distance?

200M ~ 250M in a open space.

16. How long it will take for the battery to be fully charged?

The charging period should be one hour or less, it depends on the left-over battery strength.

17. What is the battery life?

The battery contains recharging cycle up to 250 times.

CE

FC

